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ABERDEEN PROVING GROUND ADVANCED PLANNING BRIEFING TO INDUSTRY

U.S. Army Medical Research Institute of Chemical Defense
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Analysis and Integration Office
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"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."



OVERVIEW

- **History**
- **Mission and Vision**
- **Research Programs**
- **Education**
- **Consultation**
- **Facilities**
- **Human Capital Development**
- **Contracting Opportunities**
- **Patents Available for Licensing**



USAMRICD HISTORY

- **Established in 1922, to treat casualties of chemical weapons during World War I**
 - Part of the US Army Medical Department
- **1960s, renamed US Army Biomedical Laboratory**
- **1979 – placed under the command of the US Army Surgeon General**
- **1981 – became US Army Medical Institute of Chemical Defense**
 - Dedicated to advancing treatments to alleviate the suffering caused by chemical weapons and development of new materials to aid in those treatments



MISSION AND VISION

Mission

Discover and develop medical products and knowledge solutions against chemical threats via research, education & training, and consultation.

Vision

To strengthen our nation and the world by rendering chemical threats medically harmless.



A UNIQUE NATIONAL RESOURCE

- **Unique medical chemical defense mission and organization**
- **Internationally recognized expertise in medical chemical defense**
- **Chemical safety/surety/security/intel programs**
- **Only Institute to license a product through the FDA under the “animal rule” (pyridostigmine bromide)**
- **Co-location with other CBRNE partners at Edgewood**
- **Well established collaborative efforts with academia, industry, other federal agencies, and international partners**



POPULATIONS AT RISK

- **Primary mission – Warfighter: healthy, physically fit; 18-45 yr**
- **First Responders**
- **Civilian Communities**
 - Geriatric
 - Pediatric
 - Sensitive population groups



RESEARCH PROGRAMS



RESEARCH PROGRAM AREAS

Analytical

- Diagnostics
- ADME
- Forensics

Nerve Agent Countermeasures

- Reactivators
- Neuroprotectants
- Anti-convulsants
- Pretreatments

Knowledge Solutions

Agent Mitigation

- Bioscavengers
- Decontamination

Toxicants

- Cyanide Intervention
- TIC Intervention
- BoNT Intervention
- HD Intervention
- Non-Traditional Agent Intervention
- Pulmonary Protection



ANALYTICAL

Objective:

Diagnostics/Forensics:

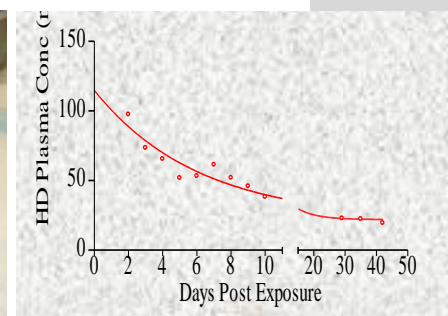
Develop and implement analytical methods for verification of human exposure to chemical threat agents using detection of biomarkers or parent agent.

ADME:

Study and elucidation of absorption, distribution, metabolism, excretion and toxicity of countermeasures against chemical and biological threat agents using in vitro and in vivo models.

Areas of Concentration

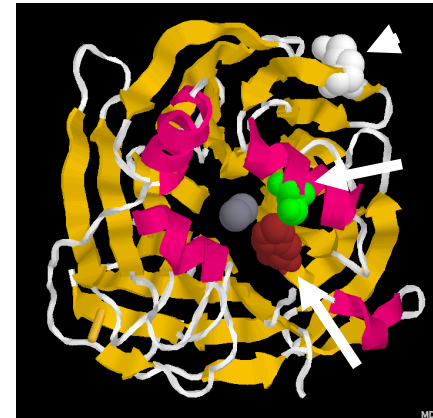
- Development of Analytical Methods
- ADME support for Chemical Biological Defense Program



AGENT MITIGATION

Objective:

Research into approaches that mitigate the medical consequences of exposure to chemical threats by removing or detoxifying them *in vivo*.



A ribbon diagram of PON1 with arrows pointing to residues 214 (top), 193 (middle) and 115 (bottom), which have been mutated to study their respective roles in catalytic activity.

Areas of Concentration

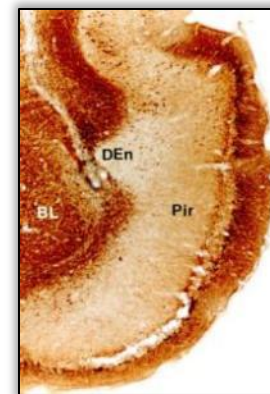
- **Bioscavenger:** Efforts to develop and characterize proteins or other compounds that can bind or catalyze the hydrolysis of nerve agents *in vivo*
- **Decontamination:** Develop and evaluate methods and materials for detoxification or removal of chemical threats from biological matrices



NERVE AGENT COUNTERMEASURES

Objective:

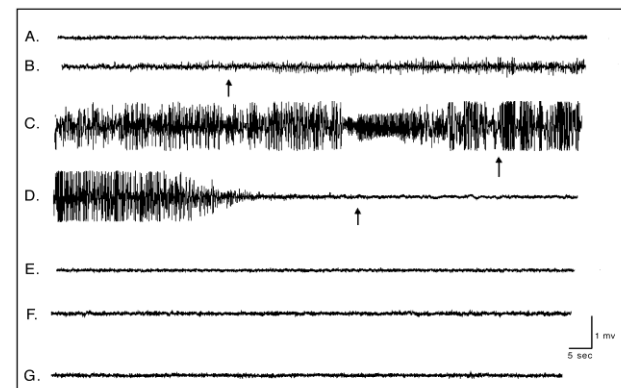
To eliminate or mitigate the acute and long-term toxic manifestations of nerve agent (NA) exposures of military and civilian populations at risk.



Seizures

Areas of Concentration

- Reactivators
- Neuroprotectants
- Anticonvulsants
- Pretreatments



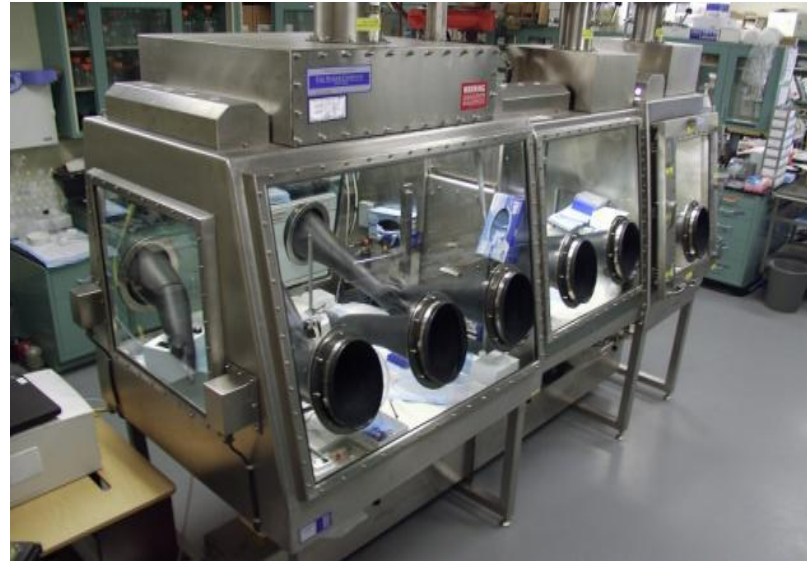
TOXICANTS

Objective:

To discover and develop medical countermeasures and knowledge solutions against non-nerve agent chemical threats.

Areas of Concentration

- Toxic Industrial Chemicals (Pulmonary Toxicant Gases)
- Cyanide and Other Metabolic Poisons
- Sulfur Mustard
- Agents of Biological Origin (e.g. Botulinum Neurotoxin)





Programs and Fielded Products

MANAA

Cyanide Treatment Kit
Decontaminable Litter
Chemical Warfare Patient Wrap



M291 Decontaminating Kit



Pyridostigmine



TestMate® Cholinesterase Kit



Nerve Agent Antidote Kit

Convulsant Antidote Nerve Agent



Multichambered Autoinjector

Chemical Casualty Care Reference Material



SERPACWA

Medical Management of Chemical and Biological Casualties Course



Hospital Management of Chemical, Biological, Radiological, Nuclear & Explosive Incidents Course



Field Management of Chemical and Biological Casualties Course



EDUCATION/TRAINING



EDUCATION/TRAINING

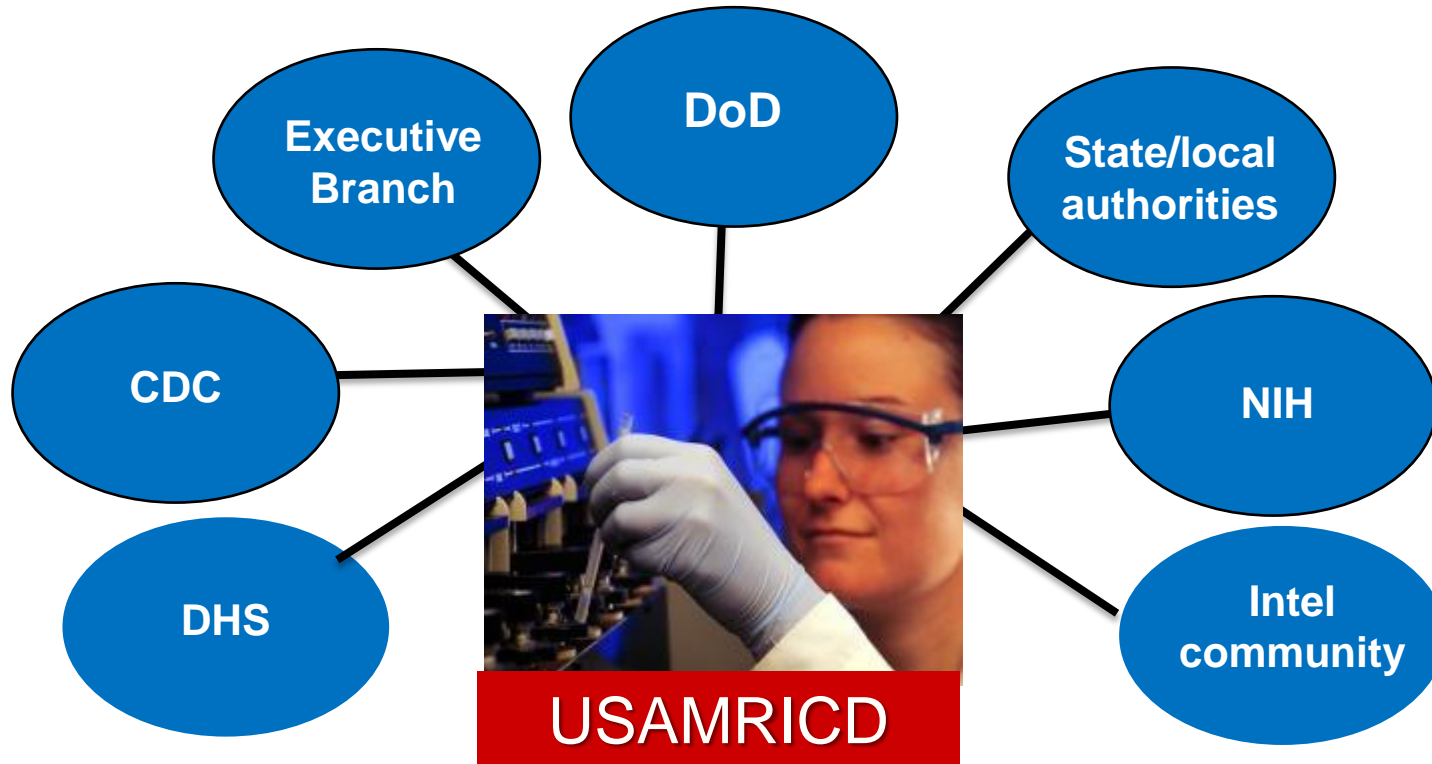
- **HM-CBRNE** - Hospital Management of Chemical, Biological, Radiological, Nuclear, and Explosive Incidents
- **Off Site Courses**
- **Webinars**
- **MCBC** - Medical Management of Chemical and Biological Casualties
- **FCBC** - Field Management of Chemical and Biological Casualties



CONSULTATION

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Federal Interagency Collaboration



Complementary programs contributing to the Nation's defense against chemical threats



CONTRACTING OPPORTUNITIES



TYPES OF CONTRACTS

- **Research Collaborations**
- **Other Research Opportunities**
- **Service Contracts**



RESEARCH COLLABORATIONS

- Outside entities have the capability to have medical chemical defense research conducted at the MRICD
- Cooperative Research and Development Agreements (CRADAs)
- MRICD currently supports a multi-million dollar collaborative research program
- Contact
 - MAJ Mariano Mesngon, Ph.D, (410) 436-1496, mariano.t.mesngon.mil@mail.mil



RESEARCH COLLABORATIONS

- Academia
- Private industry
- Other government agencies
 - National
 - International



OTHER RESEARCH OPPORTUNITIES

Outside entities can apply for research grants through several mechanisms:

- Small Business Innovation Research (SBIR)
- Broad Agency Announcements (BAA)
- Defense Threat Reduction Agency – Joint Science and Technology Office
- National Institutes of Health, CounterACT Program
- Biomedical Advanced Research and Development Authority (BARDA)



SMALL BUSINESS INNOVATION RESEARCH (SBIR)

- Administered by the U.S. Small Business Administration Office of Technology
- Ensures that the nation's small, high-tech, innovative businesses are a significant part of the federal government's research and development efforts
- Contact:
 - *J.R. Myers, (301) 619-7377,
james.myers@amedd.army.mil*
 - *<http://go.usa.gov/ftCA>*



BROAD AGENCY ANNOUNCEMENTS (BAA)

- Grant opportunities are available at the following websites:
 - <http://www.grants.gov>
 - <http://go.usa.gov/f3TP>
- CWA exposures and other collaborative efforts can be conducted at the MRICD in support of these grants



DEFENSE THREAT REDUCTION AGENCY

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- Conducts basic and applied research aimed at the discovery and/or identification of therapeutic and diagnostic medical countermeasures against chemical threat agents and toxins
- Overarching goal of this research program is to enhance diagnostic and treatment response capabilities on the battlefield
- Geared toward protecting the military population



DEFENSE THREAT REDUCTION AGENCY

- CWA exposures and other collaborative efforts can be conducted at the MRICD in support of these grants
- Contact:
 - *Dr. Eric Moore, (703) 767-3253, eric.moore@dtra.mil*
 - *<http://go.usa.gov/f3j3>*



NATIONAL INSTITUTES OF HEALTH, CounterACT PROGRAM

- Countermeasures Against Chemical Threats (CounterACT)
- Conducts basic, translational, and clinical research aimed at the discovery and/or identification of therapeutic and diagnostic medical countermeasures against chemical threat agents
- Overarching goal of this research program is to enhance diagnostic and treatment response capabilities during an emergency
- Geared toward protecting the civilian population



NATIONAL INSTITUTES OF HEALTH, CounterACT PROGRAM

- CWA exposures and other collaborative efforts can be conducted at the MRICD in support of these grants
- Contact:
 - *Dr. David Jett, (301) 496-6035, jett@ninds.nih.gov*
 - *<http://go.usa.gov/f3jm>*



BIOMEDICAL ADVANCED RESEARCH AND DEVELOPMENT AUTHORITY (BARDA)

- Provides an integrated, systematic approach to the development and purchase of the necessary vaccines, drugs, therapies, and diagnostic tools for public health medical emergencies
- Overarching goal of this program is to enhance emergency preparedness
- Geared toward protecting the civilian population
- Contact:
 - *Dr. Judith Wolfe Laney, (202) 205-8043*
judith.laney@hhs.gov
 - *<http://go.usa.gov/f3jJ>*



PATENTS AVAILABLE FOR LICENSING

Active Topical Skin Protectants Using Reactive Nanoparticles. Hobson, Stephen T., Braue, Ernest H., Jr., Lehnert, Erich K., Klabunde, Kenneth J., Koper, Olga P., Decker, Shawn. Patent Number 6,403,653 issued, 11 June 2002.

Active Topical Skin Protectants Using Polymer Coated Metal Alloys. Hobson, Stephen T., Braue, Ernest H, Jr., Back, Dwight. Patent Number 6,437,005, issued 20 August 2002.

Active Topical Skin Protectants. Braue, Ernest H, Jr., Hobson, Stephen T., Lehnert, Erich K. Patent Number 6,472,437, issued 29 October 2002.

Compositions and Methods for Reducing Blood and Fluid Loss from Open Wounds. Mershon, Millard M., US Patent Number 7,303,759, issued 4 December 2007.

Chemical Agent Decontamination Composition Comprising a Perfluorinated Alkyl Bromide. Johnston, D; Platoff, G; Baskin, S; Logan, T. US Patent Number 7,371,714, issued 13 May 2008.

Compositions & Methods for Reducing Blood & Fluid Loss from Open Wounds. Mershon, Millard M., 7,303,759, issued 4 December 2007.



PATENTS AVAILABLE FOR LICENSING

Method of Treating Organophosphorous Poisoning. Adler, M.; Albuquerque, E.; Pereira, E., 7,888,346, issued 15 February 2011.

Active Topical Skin Protectants Using Amines, Polyalkenimines and Derivatives. Braue, E.; Hobson, S.; Boecker, J.; Smith, B., 7,976,832, issued 12 July 2011.

Field Sampling Kit and Methods for Collecting and Detecting Alkyl Methylphosphonic Acids. Lawrence, R.; Smith, R.; Capacio, B., WO/2012/138384, issued 11 October 2012.

Contact:

- Suaquita Perry, (410) 436-1339 or Kim Garrettson, (410) 436-4812, usarmy.apg.medcom-usamricd.list.s8-orta@mail.mil



OPPORTUNITY -TECHNICAL SERVICES

TITLE: Lab Equipment Service Contract

CONTRACT TYPE: TBD

ESTIMATED VALUE: \$25K-\$100K

CONTRACTING CONTACT: Scot Plank, 410-417-2821, scot.b.plank.civ@mail.mil

SOLICITATION #: TBD

**ESTIMATED SOLICITATION RELEASE DATE:
2QFY15**



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<http://usamricd.apgea.army.mil>



USAMRICD

United States Army Medical Research Institute of Chemical Defense

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[COE Bioscavenger](#)

[The Journal of Medical Chemical Defense](#)

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US Army Medical Research Institute of Chemical Defense (USAMRICD)



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